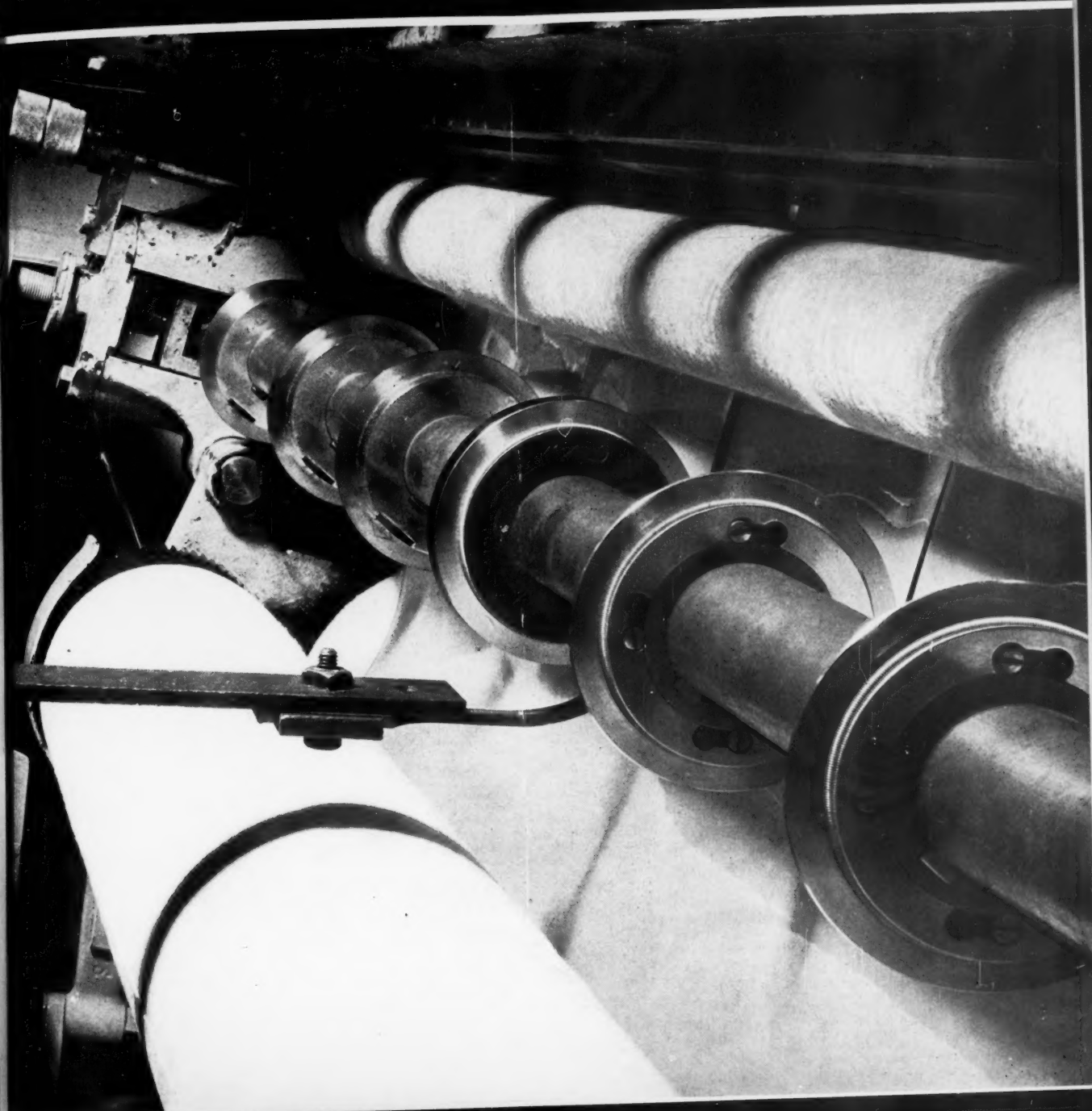


Industrial

# Standardization

and Commercial Standards Monthly



# American Standards Association

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# Industrial Standardization

And Commercial Standards Monthly

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RUTH E. MASON, Editor

**Our Front Cover:** Photographic film slitting machine. This machine operates in total darkness to produce film pack sheets of the type covered by the new American Standards. *Courtesy Agfa Ansco.*

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Reg. in U. S. Pat. Off.

**Standardization is dynamic, not static. It means  
not to stand still, but to move forward together.**

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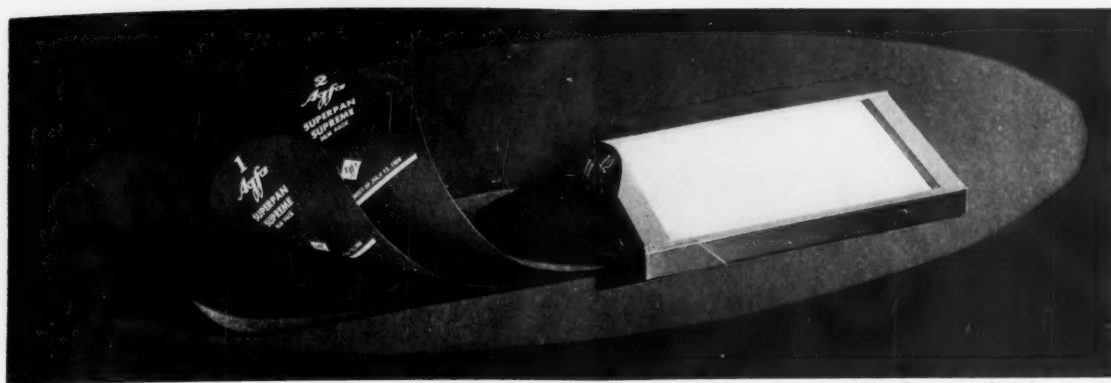
# Standardization

**I**T IS a commonplace that standardization has been an essential factor in the great increase in the real incomes of the populations of industrial countries since the latter part of the nineteenth century. This is because standards underlie all mass production methods, and because they facilitate the integrating processes necessary to large scale production and distribution.

Most of the criticisms that have been directed against standardization have been based upon the misconception that standardization means to stand still. To an industrialist a sound standard represents the best way of doing a thing—at the moment. If tomorrow he finds a better way, he will codify it in a new standard.

Sound standardization is dynamic, not static. It means, not to stand still, but to move forward together. By facilitating the flow of products through industry and commerce, standards help to maintain what an engineer would call *dynamic stability* in industrial processes—just as a motor car in motion or an airplane in flight will respond with nicety to the slightest touch on the controls, and will right itself instantly following any slight disturbance—such as a bump in the roadway or a gust of wind—provided the machine has dynamic stability.

The danger of stagnation lies, not in the use of standards, but in a fixed mental attitude, instead of one in which the mind is always receptive to new ideas.



*Courtesy of Agfa Ansco*

Dimensions for film pack tabs, film pack cases, and for 70-mm perforated and unperforated film are given in three new American Standards just completed.

# ASA Approval Completes First American Standards On Photography

by A. D. Jackling<sup>1</sup> and P. H. Arnold<sup>2</sup>

THE first American Standards in the field of photography other than cinematography to be completed by ASA Sectional Committee Z38 and approved by the American Standards Association deal with the dimensions of 70-mm perforated and unperforated recording film and with dimensions of tabs, films, and cases of photographic film packs.<sup>3</sup> The technical work on these standards was done by Subcommittee One which the sectional committee organized in March, 1939, and titled: Dimensions of Light-Sensitive Photographic Materials and Holders Therefor.

<sup>1</sup>Defender Photo Supply Company; member of ASA Sectional Committee on Photography (Z38) and chairman of its Subcommittee One on Physical Dimensions of Light-Sensitive Photographic Materials and Holders Therefor.

<sup>2</sup>Agfa Ansco; member of ASA Sectional Committee on Photography (Z38) and secretary of its Subcommittee One.

The two Film Pack Dimensional standards Z38.1.1 and Z38.1.2 not only point the way for future camera and apparatus designers but also recognize the possibility of bringing the present practice of two prominent American film pack manufacturers into closer unity. Instead of merely anticipating difficulties that might arise in the future the two film pack standards effectively answer some of the questions and solve some of the problems that have arisen in this connection in the past.

Photographic film packs consist of a dozen

<sup>3</sup>These standards are: American Standard Dimensions for Film Pack Tabs and Films (Z38.1.1-1941); American Standard Dimensions for Film Pack Cases (Z38.1.2-1941); American Standard Dimensions for 70-mm Perforated (and Unperforated) Film for Other Than Motion Picture Purposes (Z38.1.3-1941). They are being published by the Optical Society of America, and copies will be available within the next few weeks.



sheets of photographic film, each one of which is individually attached to a numbered paper tab. The whole is assembled in a frame or container usually of metal in such a way that individual films, after being exposed in the window of the case or container, may be pulled past the window around to the back side of the case by means of the attached paper tab. American Standard Z38.1.1, Dimensions for Film Pack Tabs and Films, defines the physical limits for those components of the finished article. The Standard for Dimensions for Film Pack Cases, Z38.1.2, is concerned with the overall dimensions of the case and with the dimensions of the picture aperture and its location relative to the margins of the case.

Photographic film packs provide in a compact form twelve exposures on fairly large sheets of sensitive film one or more of which can be removed from the case in a photographic darkroom for development before the entire pack has been exposed. Although they are produced on a mass-production basis and are sold at a relatively low price, photographic film packs must be made with precision and assembled with care in order to operate satisfactorily under a wide variety of

weather and other conditions of photography. The complexity of the product is illustrated by the fact that the film packs of one manufacturer consist of 49 separate parts. All these parts are different except the twelve identical film sheets and the twelve narrow tape hinges that attach these films to their paper tabs.

### Film Packs Are "Amateur"

Film packs are usually classed as "amateur" photographic materials like roll films while photographic plates and sheet films are usually regarded as "professional" materials. Possibly this results from the fact that finished film pack negatives are thinner than sheet film and have about the same physical thickness as finished roll film negatives (about .005 inch) without any regard to the type of photographic work that is performed with the material.

Amateur roll film negatives usually receive a picture size equal to the nominal size of the roll film. Film pack negatives, on the other hand, invariably have a picture size smaller than the nominal size of the pack. This is necessary in order that the individual films be held tightly in the film pack case on all four sides.

The new standards take this size difference into account and also recognize the problem created by the fact that some film pack sizes, 4 x 5 inch and 5 x 7 inch, for example, originated as inch sizes while others, like 9 x 12 cm and 10 x 15 cm originated as centimeter sizes. In preparing the standards the dimensions were established first in millimeters and then the inch equivalents were figured making use of the American Standard Practice for Inch-Millimeter Conversion for Industrial Use (B48.1-1933).

### To Guide Camera Makers

In the absence of dimensional standards for film packs, at least one camera manufacturer in the past had made a quantity of camera backs or film pack adapters that would accept the film packs of one American manufacturer but not of the other. The new American Standard Z38.1.2 will provide the proper guidance for camera and apparatus manufacturers in the future. Manufacturers of film-developing apparatus have made and marketed devices that would accept sheet films but would not accommodate film pack film sheets of the same nominal size. The new standard Z38.1.1 sets down the maximum and minimum dimensions for film sheets used in film packs of the eight sizes most popularly used throughout the world and provides developing apparatus and printing equipment manufacturers with pack film size information.

Subcommittee 1 on physical dimensions of sensitive materials of the ASA Sectional Committee on Standardization in the Field of Photography (Z38) developed the three new American Standards. Members of this subcommittee are:

A. D. Jackling, Defender Photo Supply Company,  
*Chairman*

H. F. Koch, The Haloid Company

V. J. Moyes, Eastman Kodak Company

Paul Arnold, Agfa Ansco Corporation

U. O. Hutton, Cambridge Instrument Company

George Rattray, Fairchild Aerial Camera Corporation

W. S. Vaughn, Eastman Kodak Company

V. E. Whitman, Folmer Graflex Corporation

Other subcommittees are also working on the following subjects:

Sensitivity to radiant energy (Subcommittee 2)

Supports for sensitive coatings (Subcommittee 3)

Exposing equipment (Subcommittee 4)

Photographic characteristics of illuminants (Subcommittee 5)

Processing equipment (Subcommittee 6)

Printing and projection equipment (Subcommittee 7)

Processing (Subcommittee 8)

Nomenclature, symbols, etc. (Subcommittee 9)

The location of the film pack window or picture aperture in some currently manufactured packs does not correspond perfectly with the opening or picture aperture of certain film pack adapters or camera accessories already in use. The new standard recognizes these difficulties and allows for their correction in the future (without rendering obsolete present investments in tools and dies) by a table of "Preferred Limiting Dimensions" incorporated in the American Standard for Film Pack Cases. The "Preferred Limiting Dimensions" are to be followed when new tools and dies are made so that eventually the standard can be revised and its dimensional tolerances made stricter.

The American Standards for Film Pack Tabs and Films (Z38.1.1-1941) and Film Pack Cases (Z38.1.2-1941) were approved by unanimous vote of the subcommittee at a meeting July 18, 1940. Upon recommendation of the sectional committee and the Optical Society of America, sponsor for the work, they were approved by the American Standards Association in June, 1941. So far as the subcommittee members know, these are the first dimensional standards for photographic film packs to be produced in any country. Since they cover both inch and millimeter sizes the two American Standards ought to prove acceptable for adoption in other countries and may lead eventually to international standards for the dimensions of photographic film packs.

#### Dimensions for 70-mm Film

The development of a dimensional standard for 70-mm perforated and unperforated film for recording purposes was given particular attention in the program of Subcommittee One at the request of the British photographic industry which was interested in a dimensional standard on its own account and wanted this standard if possible to be in accord with an eventual international standard. In this way the British Standards Institution recognized the secretariat of the ASA for international standardization in the field of photography exclusive of cinematography. Dimensional data was exchanged and in August, 1939, a British Standard for 70-mm film was established.

The film in question is currently employed for record purposes in oscillographs, seismographs, and other scientific recording instruments. It is not intended for motion picture use.

The original draft of the American Standard, and the present form of the British Standard for 70-mm film, did not specify the time during the useful life of the material at which the dimensional limits would be valid. The subcommittee regarded this as an important omission in view

Six proposed standards, also completed by Sectional Committee Z38, have been published for a period of trial use before being considered for final approval by the American Standards Association. These six proposed standards cover: Method for Determining Speeds of Sensitive Materials (Z38.2.1); Printing Equipment (Contact Printing Machines, Printing Frames and Masks) (Z38.7.1); Projection Equipment (Film Strip Projectors, Viewing Devices for 35-mm Film and Reading Devices for Microfilm) (Z38.7.2); Lantern Slide Projectors (exclusive of Microfilm Readers) (Z38.7.3); Opaque Projectors for Written or Printed Matter and Pictures (Z38.7.4); Testing Printing and Projection Equipment (Z38.7.5).

of the fact that photographic film is subject to reversible dimensional changes throughout a range of relative humidity conditions (especially during the process of developing its photographic layer) and is also subject to slight irreversible shrinkage during long storage.

An attempt was made to establish the dimensions that 70-mm perforated film would have at the time that a customer opened the package and undertook to use the film. This involved the preparation of a sister standard specifying the dimensions of a film-moving sprocket for 70-mm perforated film having a definite film shrinkage allowance incorporated in the dimensions and spacing of the sprocket teeth. This proposal was later abandoned and the problem was finally solved by making the film dimensions apply only immediately after the cutting and perforating operations had been performed using American Standard Z22.34-1930<sup>4</sup> as a model. The proposal in its final form was unanimously approved by Subcommittee One at a meeting September 27, 1940, and submitted to Sectional Committee Z38 as Z38.1.3.

#### May Influence Manufacturers

The 70-mm record film standard represents an attempt by means of a dimensional standard to influence future manufacturers of a product in advance. The existence of American Standard

<sup>4</sup>American Standard for 35 mm Film Cutting and Perforating Negative and Positive Raw Stock (Z22.34-1930).

Z38.1.3 should insure that 70-mm perforated films that might be made in the future will fit on the sprockets of mechanisms that now accommodate the only available film. At the same time the new standard provides instrument designers with dimensional data enabling them to produce new machines that will accept freshly perforated 70-mm recording film with standard dimensions accepted by a national consensus.

Our front cover shows a slitting machine for producing the type of film pack sheets covered by the new American Standards. The machine operates in total darkness. *Courtesy Agfa Ansco.*

## National Bureau of Standards Cooperates On OPM Simplification Program

**T**HE National Bureau of Standards, U. S. Department of Commerce, announces that it is collaborating closely with the Office of Production Management in its recently inaugurated program for eliminating unnecessary sizes and varieties of manufactured products. A plan of collaboration, details of which were worked out in harmony with a policy outlined by the Department of Justice, to cover its relation with the OPM and the OPACS, has been approved by all interested Federal Government agencies.

The work will center around the activities of the Bureau's Division of Simplified Practice, which already as the result of its normal peacetime program has promulgated more than 180 Simplified Practice Recommendations. These recommendations have been worked out through voluntary action of all concerned, with the National Bureau of Standards acting as coordinating agency.

Importance of the simplification program is indicated in estimates made on several occasions recently by Donald M. Nelson, Director of Purchases of the OPM. Mr. Nelson estimates that the productive capacity of the United States for defense could be increased from 25 to 33 1-3 per cent through the elimination of unnecessary variety in sizes, types, grades, qualities, etc. of civilian goods.

The methods by which the plan of collaboration will be carried out are illustrated in the program outlined for the electrical industry. This program is to be carried out in four steps, as follows:

1. The OPM shall secure from time to time (a) from the Bureau, or (b) from the Electrical Industry Advisory Committee, after consultation with the Bureau, specification of any such items as to which simplification for such purposes is recommended.

2. As to any items specified either by the Bureau or by the Electrical Industry Advisory Committee, the OPM

will invite such committee to recommend a simplified list of sizes, varieties, qualities, grades, etc., designed to accomplish such purposes.

3. The OPM will consult the Bureau with respect to such recommendations of the Committee and will thereupon determine what steps in regard to simplification it deems it in the public interest to take.

4. Before making such determination final, the OPM may request the Bureau, on its behalf, to submit its proposed determination for the individual comments of a comprehensive selection of firms or persons who may be affected.

"Some industries, anxious to cooperate along this line in the present emergency, have hesitated to act for fear they might conflict with the anti-trust activities of the Department of Justice," the National Bureau of Standards announcement of the collaboration plan declares. "To clear the atmosphere in this regard, Francis Biddle, Acting Attorney General, in a letter, under date of June 18 to John Lord O'Brian, General Counsel of the OPM, formally signified his approval of the general character of the plan of collaboration."

### Maryland Accepts 33 Standards As Minimum Safety Requirements

Thirty-three safety codes developed under the procedure of the American Standards Association have been recognized by the State Industrial Accident Commission of Maryland as minimum standard safety practices in the industries and operations to which they apply. These codes have been adopted by the State Industrial Accident Commission and are issued as general orders creating minimum requirements for safety and for the prevention of accidents. The 33 American Standard safety codes recognized by the Maryland commission are listed in a pamphlet, *Safety Codes and Regulations*, issued March 20, 1941.



# Inter-American Work on Standards Shows Steady Gain in Importance

**I**NTEREST in standardization is steadily increasing in the Americas. The organization of the national standardizing bodies in Argentina and in Brazil is only one evidence of such interest. There are others.

Cooperation between Canada and the United States on standardization has been active and effective for many years. The Canadian Engineering Standards Association and the American Standards Association carry on a regular exchange of information on their standardization activities. In many cases, the CESA is represented on important Asa technical committees where the sale and use of the product is important in both countries. The chairman of the Canadian Engineering Standards Association attended the recent meeting of the ASA Company Member Forum to consider coordination of steel specifications—only one specific instance of this close relationship.

The war and the dislocations of trade channels resulting from it have greatly quickened the use of standards in trade between this country and Latin America. The fact that demands upon the library of the American Standards Association for copies of standards, and for information about standards, for this use have increased several fold since the war began is only one evidence of this increased interest.

There are other evidences. In the last few years the Inter-American Safety Council has come into being, and national councils in Cuba, Costa Rica, Ecuador, Guatemala, Mexico, the United States, and Venezuela are cooperating in accident prevention. In this way they are making use of standard safety methods. Among the most important of these are safety codes for the protection of workmen and others for the protection of the public. Arrangements are being made for the translation of a group of American Standard Safety Codes into Spanish. One of these, the color code for traffic signals, which was developed by the American Standards Association fifteen years ago, is well on its way to becoming a world standard.

## Inter-American Business Committee

Recently an Inter-American Business Relations Committee was organized by the Inter-American Commercial Arbitration Commission. This com-

Many recent indications show trend toward increasing interest in cooperation on standards between Latin America and United States

Unsolved problems, however, particularly different language and lack of effective ASA representation in Latin American countries, handicap greater activity

by P. G. Agnew

*Secretary, American  
Standards Association*

mittee will serve as a clearing house for inter-American trade complaints, which will be collected and sifted and then forwarded to government and private dispute-settlement agencies. The new agency, a subcommittee of the Commission, is made up of 13 leading importers, exporters, trade association executives, and trade press publishers. It is designed to protect buyers and sellers in the United States and Latin America from trading practices that may be inimical to hemisphere solidarity. Kenneth H. Campbell, director of the foreign department of the National Association of Credit Men, is chairman of the committee, and Joseph M. Marrone, former special trade commissioner of the Department of Commerce, is secretary. The secretary of the American Standards Association is one of the members.

Direct cooperation between the American Standards Association and the national standardizing bodies in South America has progressed slowly but surely under several serious handicaps through lack of facilities in the ASA.

In 1938 the American Chamber of Commerce in Buenos Aires requested that a full-time representative of the American Standards Association

Our Institute follows closely and with great interest the important work done by the American Standards Association.

In this connection may we offer our congratulations on the accuracy of your information on the standardization work in the Argentine Republic [INDUSTRIAL STANDARDIZATION, March, 1941, page 58].

We are pleased that our work is known abroad and is looked upon with the same understanding and sympathy that we also feel for related organizations in other parts of the world.

—M. A. Ceriale, Director General,  
*Instituto Argentino de Racionaliza-  
cion de Materials, Buenos Aires,  
Argentina. From a letter to the Amer-  
ican Standards Association.*

be stationed in that city. However, trade relations between the two countries became complicated and the plan was dropped. Nevertheless, both IRAM, (the national standardizing body of Argentina), and the American Chamber in Buenos Aires still wish the American Standards Association to provide special services in the way of assembling and arranging for the forwarding of standards, publications pertaining to standards, and related material, both to the Chamber and to the Argentine standardizing body. Although war conditions have sharpened the demand for such a service the American Standards Association has been able to meet this demand only partly.

#### Agreement Is Encouraging

One encouraging step toward closer cooperation was completed recently, however, with the agreement between Sr. Plante, representing IRAM, and the ASA whereby the ASA has undertaken to circulate draft standards prepared by IRAM to American industry for comment.

Changing conditions have brought into relief the increasing need for translation of specifications into Spanish and Portuguese for the use of American exporting firms in their Latin American markets. For example, the National Electrical Manufacturers Association recently called attention of the American Standards Association to a group of American Standards in the electrical field which would be useful to their mem-

bers in the development of their foreign trade.

The British and Germans have always done much more of this than has been done in this country. For example, the British Standards Institution is even now working on a technical handbook in Spanish to tell prospective purchasers in South America what British industry has to offer.

#### Bureau Translates Standards

During the last two or three years the National Bureau of Standards has "hand-fitted" certain specifications to adapt them especially for foreign trade, and they have then been translated and published by the Bureau of Foreign and Domestic Commerce. At present the translation work of the latter Bureau is limited to standards developed through the National Bureau of Standards.

Much valuable work in translating and distributing standards has also been done through the enterprise of American technical and trade publications circulating abroad. The Division of Engineering and Industrial Research of the National Research Council recently organized a tour of industrial executives to Latin America to explore "the possibilities for increased industrial cooperation." About twenty United States business men made this tour during March and April. D. E. Douty, a member of this group, made a special study of standardization activities.

The Inter-American Committee for the Dairy Industries is studying milk standards and carrying on educational work in the various countries.

The U.S. National Committee of the International Electro-technical Commission believing "that the time is opportune for increasing activities in the Pan-American field" has recommended that the American Standards Association initiate action to this end. It and the American Institute of Electrical Engineers are making a detailed study of the subject through a special committee under the chairmanship of E. C. Crittenden, of the National Bureau of Standards.

Recently there has been so much discussion of this subject of foreign translation of American Standards as a result of present international conditions that at its last meeting the ASA Board of Directors gave serious consideration to the feasibility of providing a systematic arrangement for the translation of standards into foreign languages.

#### Summary

(a). Since the beginning of the European War there has been greatly increased interest and activity in cooperation between the Americas in standardization work. This is true in many Latin American countries and in the United States;

(b). Argentina and Brazil, which have active national standardizing bodies, have indicated a desire for more extensive cooperation with the United States in these matters. There are definite indications of interest from other countries;

(c). A considerable number of important organizations in this country—industrial, technical, and governmental—are actively interested in the subject;

(d). Technical work of this kind has a cultural as well as a commercial value;

(e). Great Britain and especially Germany have been more active in such cooperation than we have, and their standards have therefore been integrated into the industrial and commercial life of Latin America to a greater extent than have the standards of this country.

Because of the importance of standards, which may be considered the warp of our social and economic civilization, cooperation on standards can be one of the basic forces in integrating and coordinating our activities, economically and culturally as well as in the engineering field.

The time now seems ripe for an organized effort to take advantage of the present interest and activity on standards in the Americas and bring about more extensive and more effective cooperation. The cost would be small in comparison with the great potential advantages.

## Plante, IRAM Vice-President, Visits United States

Senor Patricio Plante, vice-president of IRAM, the national standardizing body in Argentina, has just returned home following a month's stay in the United States. During his visit here Senor Plante conferred at length with the American Standards Association in order to bring about closer cooperation between the two organizations.

This cooperation includes an arrangement by which the ASA will circulate standards of the Argentinian body in draft form to secure criticism from interested American industries before their formal adoption by the Argentinian body.

IRAM, largest and oldest standardizing body in Latin America, maintains for the use of Argentinian industries files of all of the more important standards of the industrial countries of the world.

Senor Plante is Director of Talleres Metalurgicos in Buenos Aires.

## ASA Proposes Policy on International Standards

To provide a basis for the renewal of activity on international standards at the end of the present war, the American Standards Association has suggested to the International Standards Association, with headquarters in Basel, Switzerland, that it go into "hibernation" for the duration of the war. The ASA has expressed its willingness, provided the ISA accepts this suggestion, to contribute a small sum annually to maintain the secretariat on a reduced scale and to assure the safe keeping of ISA records.

In addition to this suggestion, the ASA urges that ASA committees which have been cooperating in international standardization work remain active and press toward the completion of national standards. When the time comes that international cooperation can again be effective, these completed American Standards will then be ready for consideration as the basis for international agreements, the ASA suggests in a letter to chairmen of these committees.

At the present time, although contacts with the

countries within the British Commonwealth, and with the Latin American countries, are being maintained with regular exchange of standards and other material, contacts between the American Standards Association and the standardizing bodies on the continent of Europe have become almost impossible.

## BSI Studies Standards For Building Materials

The Ministry of Works and Buildings, in close collaboration with the British Standards Institution, is now actively studying the possibility of standardizing the building materials used by the various Government departments, according to the *London Economist*, June 14. The BSI has just issued the first of a series of war emergency standards for building materials. This first standard on doors has been issued to all Government departments and contractors supplying them.

# New Data on Hazardous Occupations Is Made Available to ASA Committees

**L**OGGING and sawmilling and the operation of woodworking machines are occupations particularly hazardous to minors, the Children's Bureau of the U. S. Department of Labor declares in two new orders raising the minimum age for employment in these industries from 16 years as set by the Fair Labor Standards Act to 18 years.

Investigations carried out by the Bureau in connection with these orders have resulted in the compilation of valuable accident data in these industries which is being made available by the Bureau to the ASA sectional committees in charge of the Logging and Sawmill Safety Code (B13-1924) and the Safety Code for Woodworking Plants (O1-1930). Through a liaison arrangement the safety engineer of the Children's Bureau will meet with these sectional committees to give them the benefit of his experience.

## Occupations Declared Hazardous

Order No. 4 of the Children's Bureau declares that "all occupations in logging and all occupations in the operation of any sawmill, lath mill, shingle mill, or cooperage-stock mill" are hazardous for minors between 16 and 18 years of age. It specifically excepts from its provisions, however, work in offices and in repair and maintenance shops; work in the operation and maintenance of living quarters; work in timber cruising, surveying, or logging-engineering parties; work in forest protection; and work in the feeding or care of animals used in logging. Work in timber culture and timber-stand improvement is not classed as a logging occupation and is not covered by the order, nor is work in emergency fire-fighting in the event of forest fires. The order covers pulpwood logged in connection with timber for other uses, but does not include it if pulpwood only is logged. The Children's Bureau is planning to undertake later a study of the hazards of pulpwood logging, in connection with a study of the hazards of pulp and paper making.

The Bureau's Order No. 5 applying to woodworking machines has the effect of setting a minimum age of 18 years for employment in occupations involved in the operation of power-driven wood-working machines, but permits the continued employment of those between 16 and 18 in a few off-bearing occupations and in occupations which do not involve work on a machine.

The order covers off-bearing from circular saws and guillotine-action veneer clippers where such

off-bearing is done directly from a saw table or from the point of operation, but it is not intended to include workers engaged in removing material or refuse from these machines where such materials or refuse have been conveyed away from the saw table or point of operation by some mechanical means or by a gravity chute. Neither is the order intended to apply to workers engaged in moving materials from one machine to another or one part of a plant to another by hand or by truck, nor to workers sorting, tying, or loading materials, provided that these operations do not involve the removal of material or refuse directly from the saw table or point of operation.

The Children's Bureau has the responsibility under the Fair Labor Standards Act of 1938, for finding and declaring occupations hazardous or detrimental to the health or well-being of minors. It works with the help of an Advisory Committee of 15 members, experts from industry, safety, and educational organizations, under the chairmanship of Cyril Ainsworth, assistant secretary of the American Standards Association.

The first three of the Bureau's orders cover, respectively, any plant manufacturing explosives or articles containing explosives components; the occupations of motor-vehicle driver and helper; and coal-mine occupations.

## Investigate Shipbuilding Dangers

The Bureau is now carrying on investigations concerning hazards to minors in shipbuilding and in the use of metal-working machinery.

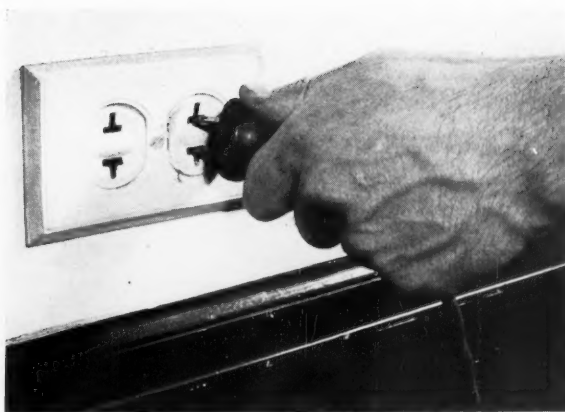
Copies of the orders may be obtained from the Children's Bureau, U. S. Department of Labor, Washington, D. C. or from the regional offices of the Wage and Hour Division, U. S. Department of Labor.

## U. S. Navy Names Blandy, Couble On ASA Standards Council

Rear Admiral W. H. P. Blandy, USN, who has relieved Rear Admiral W. R. Furlong, USN, as Chief of the Bureau of Ordnance, has been named by the U. S. Navy Department as the Department's representative on the ASA Standards Council.

Commander Alexander J. Couble, USN, on duty in the Bureau of Ordnance, has relieved Commander F. T. Spellman, USN, and has been named alternate for the Chief of the Bureau of Ordnance on the Standards Council.





*Photo by Giles from Black Starr*

# Standard for Attachment Plugs Becomes American Standard

by A. B. Smith

*Assistant Secretary, Codes and Standards  
Committee, National Electrical Manufacturers  
Association*

**T**HE American Standard for Attachment Plugs and Receptacles (C73-1941), now approved by the American Standards Association, has a long and interesting history. It has been developed over a period of 20 years or more by the National Electrical Manufacturers Association and its predecessor organization, the Associated Manufacturers of Electrical Supplies. Its importance has increased during those 20 years in proportion to the rapid rise in the use of electrical appliances, for the standard receptacles are installed in every building constructed, and the plugs or connectors are used on almost every portable appliance which is designed for use in residences or commercial buildings. All manufacturers of attachment plugs, receptacles, and connectors use the standard as the basis for their designs.

The standard was submitted to the American Standards Association by the National Electrical Manufacturers Association as an Existing Standard, for approval as American Standard. After a careful scrutiny of information demonstrating its broad acceptance by industry, it was so approved.

The history of the development of this standard is particularly interesting.

Prior to the adoption of the flat-blade type of attachment plug and receptacles, various manufacturers had their own particular designs of contact members, of which most were not interchangeable as between different manufacturers. The confusion and inconvenience to the public in the use of appliances is obvious.

The rapid increase in the use of portable appliances in residences and commercial occupancies indicated clearly the need for one single type of plug and receptacle for which the products of different manufacturers would be interchangeable. This was especially desirable in view of the continual change in occupancy of rented property.

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**Wide acceptance of NEMA  
standard for attachment plugs,  
receptacles, and connectors is  
recognized in approval of stand-  
ard by American Standards  
Association**

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The problem was assigned to the Wiring Committee of the old National Electric Light Association, of which R. S. Hale, Boston Edison Illuminating Company, was chairman, and on which manufacturers of plugs and receptacles were represented.

That committee made a very careful study of the various designs on the market at that time (about 1910-1912). Two types were in the "finals"—the present flat-blade type, and the so-called rock-off type, of which the outstanding characteristic was the ability to be withdrawn from the receptacle by a pull on the cord at almost any angle. The present standard type, known as the "straight-pull, flat-blade type," finally won out and has received universal acceptance in this country.

For industrial property, the conditions of occupancy were less subject to change so that, although many receptacles and plugs of the interchangeable type are used in industrial occupancies, other types which have not been standardized by the industry as a whole are also used. The American Standard does not cover those types.

In 1927, under NEMA auspices, the standards for the flat-blade interchangeable type which existed previously under the Associated Manufacturers of Electrical Supplies were codified. Of the present standards:

- 13 items are the same as those adopted in 1927.
- 16 are 1931 revisions (additions or changes) of 1927 items.
- 4 were new in 1931.
- 7 are 1936 revisions (additions or changes) of 1927 items.
- 2 are 1936 revisions of 1931 items.
- 7 are new in 1936.

As we have said above, this standard has an unusually wide use, since all manufacturers of

attachment plugs, receptacles, and connectors use it as the basis for their designs.

### Safety Codes Refer to Standards

In addition to this use of the standard, provisions of safety codes, formulated by representative committees in accordance with ASA procedure, have been predicated upon the use of products conforming with these standards.

Underwriters' Laboratories' standards for attachment plugs and receptacles recognize the NEMA standards as being the accepted standard for spacings, dimensions of blades, and arrangement of contacts.

### Relation to Other ASA Projects

This standard, and the standards or safety codes of five other ASA projects are interdependent. Those other projects are:

- Rotation, Connections and Terminal Markings for Electric Power Apparatus, (C6).
- National Electrical Code (C1).
- National Electrical Safety Code, Part 3 (C2).
- Electrical Devices and Materials with Relation to Fire and Casualty Hazards, (C33).
- Rolled Threads for Screw Shells of Electric Sockets and Lamp Bases (C44).

### Revision

Revision as needed to keep abreast of developments will be made by a representative ASA sectional committee for which the National Electrical Manufacturers Association has been assigned administrative sponsorship. This committee, when formed, will be composed of representatives of manufacturers, users, and others concerned with the construction or performance of these devices. Correlation of these standards with those of other related ASA projects will be assured by the Electrical Standards Committee of the ASA.

## Hygiene Division Reports On Toxic Materials

Surveys showing the nature and the extent of danger to health from concentrations of carbon disulfide and hydrogen sulfide in the air are now available in two reports just issued by the Division of Industrial Hygiene, National Institute of Health, United States Public Health Service. These two reports, together with two on carbon monoxide and benzene, complete the reports referred to in the four new American Standards on allowable concentrations for carbon monoxide, hydrogen sulfide, carbon disulfide, and benzene.

In the two reports just issued the Public Health Service analyzes the physico-chemical properties

of the toxic materials, gives the maximal permissible concentration as approved by the American Standards Association, and discusses the sources of exposure, how to determine the presence and quantity of the substance, how they are absorbed, and their effect on a human being. In addition the reports give information about the measures to be taken to prevent poisoning as well as what treatment to apply in case poisoning does take place.

Copies of the two documents, *Survey of Toxicity and Potential Dangers of Hydrogen Sulfide and Carbon Disulfide: Its Toxicity and Potential Dangers*, are available from the Superintendent of Documents, Government Printing Office, Washington, D. C. at five cents each.

# How Durable Is Rapid-Hardening Concrete?

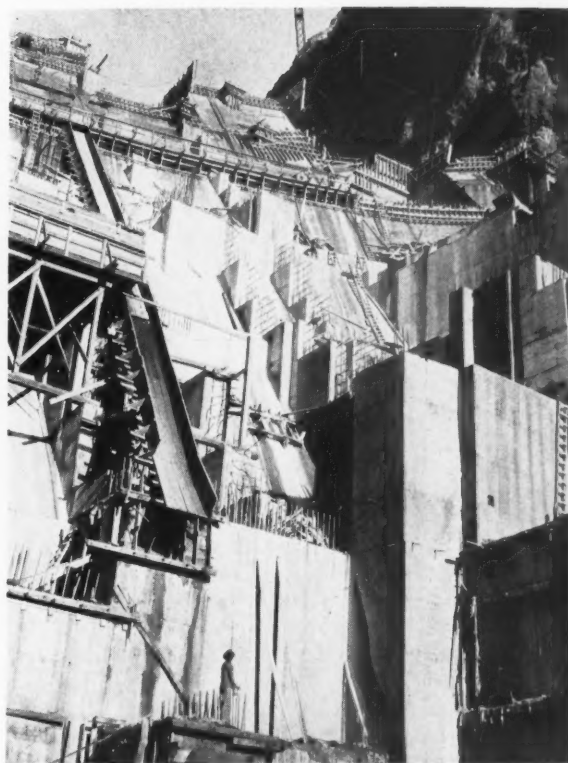
Recent trends in specifications for Portland cement are reviewed in this abstract of an address<sup>1</sup> by F. H. Jackson, Senior Engineer of Tests, Federal Works Agency, Public Roads Administration.

Specifications for cement may need revision, Mr. Jackson indicates, as a result of studies now being made on concrete durability and the effect on durability of the minor constituents in cement.

**T**HE first ASTM specifications for portland cement were adopted by the American Society for Testing Materials in 1904, nearly 40 years ago. This society has, during all these years, been regarded as the logical sponsor for specifications for this product. Therefore it must be given credit for whatever progress has been made but, by the same token, must be held responsible for any lag which may have occurred in the development of adequate specifications.

For many years following the adoption of specifications for standard portland cement, efforts were concentrated on strengthening and improving this single standard. Obviously it was much to the advantage of the industry to have a single standard and a great deal of attention was given during this period to developing the idea among consumers, not only that one standard was sufficient, but also that all portland cements manufactured under that standard were identical in quality insofar as performance was concerned.

<sup>1</sup> Presented before the December 10, 1940, meeting of the Philadelphia Section, American Society of Civil Engineers.



*Photo by Charles Phelps Cushing*

Concrete construction at Boulder Dam in an early stage. Control of heat generated by cement is an important problem in such large water-impounding structures

The first tendency to break away from this comforting thesis came in 1930 with a proposal to adopt specifications for a cement which would harden much more rapidly than the normal product. This development was at least partly the result of a demand on the part of highway users for a cement that would permit of the early opening of concrete pavements to traffic. The willingness of certain manufacturers to meet this demand with cement sold under the same specifications as other normal cements created a competitive situation which resulted

finally in the adoption of specifications for a rapid hardening cement—thereby classifying this kind of cement as a distinct type.

The construction of Boulder Dam on the Colorado River as well as other water-impounding structures using concrete in large masses raised another question—that of the control of the heat generated by the setting of the cement. It is, of course, obvious that this chemical heat of hydration will not be dissipated in a large mass as quickly as in the usual type of structure. The resulting tendency to cracking may become serious unless controlled. Efforts were therefore directed toward the development of a type of cement (called low-heat cement) which would hydrate rather slowly, thereby permitting the heat to dissipate and thus reduce the cracking tendency.

### To Resist Sea Water

Still another trend in the direction of producing special cements for special purposes is seen in the development of a cement which will give improved resistance to the action of chemically aggressive waters—such as sea water, alkali waters, etc. It has been found that by controlling the composition in certain ways a cement may be made which is considerably more resistant to this action than ordinary standard portland.

The 10-year period following the adoption of the high-early-strength specifications has witnessed a marked change in the attitude of the consuming public regarding the adequacy of the standard specifications. There has been developing during this period a feeling on the part of certain consumer groups that it does not necessarily assure a durable cement and that additional test requirements must be included in order to insure the manufacture of a sufficiently satisfactory product. Among the consumers of portland cement there is also a substantial group who feel very definitely that the modern trend towards high early strength has resulted in producing cements lacking in durability and that we should return to the old-fashioned type made 20 or 25 years ago.

### Cements Are Not Giving Service

The feeling that modern cements are not giving the service which we have a right to expect has resulted largely from the general observation of the behavior of structures in service rather than as the result of specific research investigations.

I am old-fashioned enough to believe that density is still a prime consideration in producing durable concrete. By dense concrete, I mean watertight concrete—concrete which is sufficiently

dense to prevent the entrance of water into or the movement of water through the mass. If we could produce a truly watertight concrete we would not have to worry nearly so much about the relative weathering resistance of the various constituents which compose it.

It is now quite generally agreed that portland cement which by the old ASTM definition consists of an intimate mixture of calcareous and argillaceous materials calcined to incipient fusion and then ground to a fine powder, consists essentially of four major compounds, tricalcium silicates,  $C_3S$ , dicalcium silicate,  $C_2S$ , tricalcium aluminate,  $C_3A$ , and tetracalcium aluminoferrite,  $C_4AF$ . These compounds are formed during the burning operation and their hydration in the presence of water causes the hardening of the cement paste. There are other so-called minor constituents present, the amounts of which depend largely on the amounts in which they are present in the raw materials. The role of these minor constituents, particularly the compounds of sodium and potassium, as influencing concrete durability under certain conditions is now being studied intensively.

### Silicates Important as Cementing Agent

Of the four major compounds the two silicates contribute most to the value of the product as a cementing agent. They constitute roughly 30 percent of the cement and the relative proportions in which they occur determine largely the rate at which strength develops. The aluminate compounds are present somewhat as necessary evils as they contribute little to the ultimate strength of the concrete.

The relative amounts of  $C_3S$  and  $C_2S$  are controlled largely through control of the proportion of lime to silica in the raw mix, the higher the lime the higher the  $C_3S$ . This is the compound which contributes most to early strength so that the development of cements which will harden rapidly has necessarily been accompanied by an increase in the lime content.

The relative amounts of  $C_3A$  and  $C_4AF$  in cement depends principally on the relative amounts of alumina and iron in the raw mix.

One of the most controversial features involved in the writing of cement specifications centers around the necessity for limiting the formation of  $C_3A$ . This compound is considered by many to be the least desirable of the four major compounds. Its only contribution to strength is at very early periods—within the first few hours. It is valueless from the standpoint of ultimate strength.

I think that most specification writers will agree with me in saying that we would prefer to omit chemical requirements altogether from



the specifications for portland cement provided we were able to evaluate the product completely by the use of performance tests. Unfortunately we have no satisfactory performance test for durability. Freezing and thawing tests take too long and even if they could be used as acceptance tests there is a question as to their significance. Tests for volume change under normal curing conditions (not autoclave tests) might prove of value.

It is possible that at least a partial answer to the problem of durability may be found in one or more of the tests which have been proposed to control completeness of burning. I refer to the sugar solubility test proposed some years ago by Thaddeus Merriman and now used in the specifications of the New York Board of Water Supply and the clinker soundness test recently adopted by the New York State Highway Department.

It will be of interest to touch briefly on the subject of alkalis. Until quite recently little attention was paid to the possible effect of such small quantities of alkali as normally appear in

portland cement. The feeling is growing, however, that the presence of even small quantities of the alkalis may modify the properties of the cement considerably.

In the case of uncombined lime, a test for soundness is much to be preferred to a direct determination of free lime made on the clinker. The autoclave high-pressure steam test is favored by many even though we may not have absolutely positive evidence that it will insure against delayed unsoundness. It is difficult to see where its use can work any hardship on manufacturers even though a limit as low as 0.25 percent is set.

The question of fineness should also be considered. Many engineers as well as manufacturers feel that there is no necessity for a fineness requirement in the specification because other requirements such as strength and soundness will automatically insure that the cement has been ground sufficiently. Others would agree with this if we had a test for bleeding or water gain but until we do they believe that a requirement for fineness should always be included.

## ASA Approves Six Standards For Gypsum Products

Six standards providing specifications and methods of test for gypsum products were approved recently by the American Standards Association following submittal by the American Society for Testing Materials. The ASTM was granted proprietary sponsorship for future revisions. The following six American Standards were approved:

- Specifications for Calcined Gypsum for Dental Plasters (A65.1-1941; ASTM C72-40)
- Specifications for Keene's Cement (A66.1-1941; ASTM C61-40)
- Specifications for Gypsum Lath (A67.1-1941; ASTM C37-40)
- Specifications for Gypsum Sheathing Board (A68.1-1941; ASTM C79-34)
- Specifications for Gypsum Wall Board (A69.1-1941; ASTM C36-34)
- Methods of Testing Gypsum and Gypsum Products (A70.1-1941; ASTM C28-40)

In connection with the approval of these standards the ASA Board of Examination found that all were acceptable. However, the Board also learned that the Specifications for Calcined Gypsum for Dental Plasters were being studied by some companies producing dental plasters, and as a result further research is to be carried on by laboratories in cooperation with ASTM Committee C-11 which recommended submittal of the standards to the ASA. The purpose of this study

will be to determine whether compressive strength or tensile strength tests are more significant, and may lead to the substitution of the provisions for compressive strength for those on tensile strength.

## New Manual Gives Requirements For Motor Vehicle Inspection

"Keep your car in good health" is the slogan of a new publication, *Safe Motoring*, prepared by E. L. Yordan, and published by Eye Gate House, Inc., New York. The publication gives in a popularized form the principal provisions of the American Standard Inspection Requirements for Motor Vehicles. In addition, the manual explains why these requirements have been agreed upon. The recommendations in the code are minimum or basic requirements for safe car operation, but the code urges car owners to maintain their vehicles in condition well above these minimum standards.

"Observance of the many practical suggestions given should help the driver avoid serious mishaps or inconvenience on the road, besides adding to his peace of mind and enjoyment in driving," declares L. S. Harris, executive director of the American Association of Motor Vehicle Administrators, in a Foreword to the manual.

Copies of the booklet are available at 25 cents each from Eye Gate House, Inc, 330 West 42nd Street, New York.

# New Association and Government Standards

(See "ASA Standards Activities," page 219, for new American Standards and progress on ASA projects)

The ASA Library has received for its classified files copies of standards and specifications from the organizations listed below.

These standards may be consulted by ASA Members at the ASA Library.

Anyone desiring copies for his own use should write direct to the organization issuing the standard.

## Associations and Technical Societies

### American Petroleum Institute, Division of Production (1205 Continental Building, Dallas, Texas)

API Specification for Cable Drilling Tools, Std 3. Ninth Edition, March, 1941.

API Specification for Casing, Drill Pipe and Tubing, Std 5-A. Eleventh Edition, April, 1941.

Specification for Inspection of Threads on Oil Country Tubular Goods, Std 5-B. Second Edition April, 1941.

Standards on Well-Control Valves; Flanged End Rising Stem Solid Wedge and Double-Disc Gate Valves (Tentative), Std 5-G-2. Third Edition, March, 1941.

API Standard on Well-Control Valves; Flanged Round-Opening Steel Plug Valves (Tentative), Std 5-G-2A. First Edition, April, 1941.

API Specification for Standard Tanks with Riveted Shells for Oil Storage, Std 12-A. Seventh Edition, March, 1941.

Specification on All-Welded Oil Storage Tanks, Std 12-C. Fourth Edition March, 1941.

Specification for All-Welded Production Tanks (Tentative), Std 12-D. First Edition, March, 1941.

### American Petroleum Institute (50 West 50th Street, New York, N. Y.) and American Society of Mechanical Engineers (29 West 39th Street, New York, N. Y.)

API-ASME Code for the Design, Construction, Inspection, and Repair of Unfired Pressure Vessels for Petroleum Liquids and Gases. Third Edition. \$1.25.

### American Society of Mechanical Engineers (29 West 39th Street, New York, N. Y.)

ASME Boiler Construction Code, Sections I, VI, and Appendix, Rules for Construction of Power Boilers, 1940. \$2.25.

ASME Boiler Construction Code, Section II, Specifications for Materials, 1940. \$2.00.

ASME Boiler Construction Code, Section III, Rules for Construction of Boilers of Locomotives, 1940. 55¢

ASME Boiler Construction Code, Section IV, Rules for Construction of Low Pressure Heating Boilers, 1940. 75¢.

### American Society of Mechanical Engineers (Continued)

ASME Boiler Construction Code Section V, Rules for Construction of Miniature Boilers, 1940. 65¢.

ASME Boiler Construction Code, Section VII, Suggested Rules for Care of Power Boilers, 1940. \$1.00.

ASME Boiler Construction Code, Section VIII, Rules for Construction of Unfired Pressure Vessels, 1940. \$1.50.

### Association of American Railroads, Freight Container Bureau (30 Vesey Street, New York, N. Y.)

Packing Kitchen Enamel Ware in Corrugated Fibre Boxes, No. 40. 15¢.

Packing of X-Ray Tubes in Wooden and Fibreboard Boxes, No. 41. 10¢.

Packing of Neon Signs in Fibreboard and Wooden Containers, No. 52. 15¢.

### Association of American Railroads, Signal Section (30 Vesey Street, New York, N. Y.)

Specifications for Wires, Cables and Tapes (Includes 27 standard specifications, and also recommended stringing tensions and sags for various sizes of new suspension strands and cables; stringing sags for new line wires; and wire inspection report).

### Edison Electric Institute (420 Lexington Avenue, New York, N. Y.), National Electrical Manufacturers Association (155 East 44th Street, New York, N. Y.), and Radio Manufacturers Association (1317 F Street, N. W., Washington, D. C.)

Methods of Measuring Radio Noise. 1940.

### Illuminating Engineering Society (51 Madison Avenue, New York, N. Y.)

Recommended Practice of Street Lighting, 1940. Prepared by the Committee on Street and Highway Lighting of the Illuminating Engineering Society. 15¢.

### National Electrical Manufacturers Association (155 East 44th Street, New York, N. Y.)

NEMA Power Switching Equipment Standards, Publication No. 41-65. Supersedes edition published in 1935. 75¢.

### National Warm Air Heating and Air Conditioning Association (5 East Long Street, Columbus, Ohio)

Technical Code for the Design and Installation of Mechanical Warm Air Heating Systems. Third Edition, June 1, 1940. 50¢.

**National Warm Air Heating and Air Conditioning Association (Continued)**

Standard Gravity Code for the Design and Installation of Gravity Warm Air Heating Systems. Eleventh Edition, June 1, 1940. 25¢.

Practical Code for the Design and Installation of Mechanical Warm Air Heating Systems. Fifth Edition, June 1, 1940. 25¢.

A Yardstick for the Evaluation of a Forced Warm Air Heating System. First Edition, January, 1941. 25¢.

**Radio Manufacturers Association (1317 F Street, N. W., Washington, D. C.)**

Standards for Vacuum Tube Basing, Sheets V4, V4A, V5, V5A, V6, V6A, V6B, V7, V7A, V7B, V8, V8A, and V8B.

**Underwriters' Laboratories, Inc. (161 Sixth Avenue, New York, N. Y.)**

Standard for Armored Cable. Fourth Edition, March, 1941.

Standard for Fire-Alarm Cables. First Edition, April, 1941.

**United States Government**

**National Bureau of Standards (Washington, D. C.)**

**Commercial Standards**

**Accepted by Industry and Promulgated**

Calking Lead, CS94-41

Lead Pipe, CS95-41

Lead Traps and Bends, CS96-41

Diamond Core Drill Fittings, CS17-42

Moisture Regains of Cotton Yarns, CS11-41

**In Print (Copies available from Superintendent of Documents, Government Printing Office, Washington, D. C.)**

Gage Blanks, CS8-41. Third Edition.

Domestic Burners for Pennsylvania Anthracite (Underfeed Type), CS48-40. Third Edition.

Woven Textile Fabrics, Testing and Reporting, CS59-41. Third Edition.

Phenolic Disinfectant (Emulsifying Type), CS70-41. Second Edition.

Phenolic Disinfectant (Soluble Type), CS71-41. Second Edition.

Factory-Fitted Douglas Fir Entrance Doors, CS91-41.

Cedar Cypress, and Redwood Tank-Stock Lumber, CS92-41.

**Withdrawn**

Wool and Part-Wool Blankets, CS39-37.

**Simplified Practice Recommendations**

**Approved by Standing Committee and Circulated to Industry**

Paints, Varnishes, and Related Products, R144-41

Forged Hatchets, R160-41

**Accepted by Industry and Promulgated**

Surgical Gauze, R86-41

Hospital Plumbing Fixtures, R106-41

Packaging of First-Aid Unit Dressings and Treatments, R178-41

Structural Insulating Board, R179-41

INDUSTRIAL STANDARDIZATION announces that, beginning with this issue, it will list standards published by nationally recognized associations and technical societies in the United States as they are received by the ASA Library. This extends to domestic standards the service started some time ago for foreign standards.

The standards listed are on file at the ASA Library for reference only, and may be consulted there. Copies may be obtained from the organization issuing the standard. Addresses are included for that purpose.

If our list is not complete and a new standard issued by your organization is not included, please let us know immediately, enclosing a copy of the standard.

Comments or suggestions as to ways in which the new service can be made more effective will be appreciated.

—EDITOR

**Simplified Practice Recommendations (Continued)**

Copper Conductors, R180-41

Non-Ferrous Range Boilers, R181-41

**In Print (Copies available from Superintendent of Documents, Government Printing Office, Washington, D. C.)**

Paper, R22-40

Metal and Nonconducting Flashlight Cases, R68-41

Salt Packages, R70-41

Set-Up Paper Boxes (Used by Department and Specialty Stores), R126-41

Folding Paper Boxes (Used by Department and Specialty Stores), R127-41

Notion and Millinery Paper Bags (Used by Department and Specialty Stores), R129-41

Cans for Fruits and Vegetables (Names, Dimensions, Capacities, and Designated Use), R155-40

Extracted Honey Packages, R156-41

Color Marking for Anesthetic Gas Cylinders, R176-41

Single-Faced Corrugated-Board Rolls (Used by Department and Specialty Stores), R177-41

**Reaffirmed without Change**

Box Board Thicknesses, R44-36

Packaging of Overhead Electric Railway Material, R65-31

Forms for Concrete Joist Construction Floors, R87-32

Packaging of Electric Railway Motor and Controller Parts, R145-33

Packaging of Automotive (Bus) Engine Parts, R161-35

Packaging of Air Brake (Electric Railway) Parts, R162-35

**Federal Specifications Executive Committee (U. S. Treasury Department, Washington, D. C.)**

*The date after the title of the specification indicates when the specification becomes effective.*

**Federal Specifications**

*(Copies available from Superintendent of Documents, Government Printing Office, Washington, D. C.)*

Beds, hospital; adjustable-spring bottom. (Superseding AA-B-211a) AA-B-211b July 1, 1941  
Gold; casting, inlay, dental. (Amendment-1) QQ-G-540 Aug. 15, 1941  
Graduates; glass, conical. (New) DD-G-666 Sept. 15, 1941  
Hardware builders'; hinges (nontemplate). (Superseding FF-H-116a) FF-H-116b Sept. 1, 1941  
Headcheese. (Amendment-1) PP-H-191 Aug. 1, 1941  
Hearts; beef. (Amendment-1) PP-H-201 Aug. 1, 1941  
Kidneys; beef. (Amendment-1) PP-K-351 Aug. 1, 1941  
Liver. (Amendment-2) PP-L-351 Aug. 1, 1941  
Machines; slicing, bread. (New) OO-M-66 July 15, 1941  
Mattresses; inner-spring. (Superseding V-M-96) V-M-96a Aug. 1, 1941

**Emergency Alternate Specifications  
Conserve Strategic Materials**

In order to conserve strategic materials, the Federal Specifications Executive Committee announces approval of Emergency Alternate Federal Specifications which will replace regular Federal Specifications for Government purchasing in cases where it is determined that substitute materials can and should be used. These emergency specifications, prepared in collaboration with the Office of Production Management, will make it possible to leave existing specifications unchanged for use when supplies are again normal.

The following Emergency Alternate Federal Specifications have been issued, subject to possible emergency revision:

Aluminum-alloy (A1-52) (Aluminum-magnesium-chromium); plates, sheets and strips E-QQ-A-318 June 14, 1941  
Aluminum-alloy (A1-24) (aluminum-copper-magnesium) (1.50% manganese); bars, rods, shapes and wire E-QQ-A-354 June 14, 1941  
Brass; castings (to be brazed) E-QQ-B-601 June 16, 1941  
Brass, commercial and naval; castings E-QQ-B-621 June 16, 1941  
Brass, commercial; bars, plates, rods, shapes, sheets, and strips E-QQ-B-611a July 8, 1941  
Brass, naval; bars, plates, rods, shapes, sheets, and strips E-QQ-B-636 July 8, 1941  
Bronze; castings E-QQ-B-691a June 20, 1941  
Bronze, manganese; castings E-QQ-B-726a June 20, 1941  
Cans, corrugated; ash or garbage E-RR-C-181, April 30, 1941

**Federal Specifications (Continued)**

Paint; resin-emulsion, interior, paste light-tints and white. (New) TT-P-88 Aug. 1, 1941  
Pork. (Amendment-2) PP-P-571 Aug. 1, 1941  
Sausage; Vienna-style, canned. (Amendment-2) PP-S-101 Sept. 1, 1941  
Shovels (scoops, spades, and spoons). (Superseding GGG-S-111) GGG-S-326 June 15, 1941  
Sterilizers; accessories and portable-lockers (for) sterilizers. (Superseding GG-S-751) GG-S-751a Aug. 1, 1941  
Turkeys; dressed. (Amendment-2) PP-T-791a Aug. 1, 1941  
Vinegar. (Superseding Z-V-401) Z-V-401a June 15, 1941

**Food and Drug Administration (Federal Security Agency, Washington, D. C.)**

Oleomargarine

**U. S. Marketing Service (U. S. Department of Agriculture, Washington, D. C.)**

Official Grain Standards of the United States for Soybeans  
United States Standards for Grades of Dried Apricots  
United States Standards for Grades of Tomato Catsup

Culverts; iron or steel, zinc-coated E-QQ-C-806 June 2, 1941  
Fencing; chain-link or welded E-RR-F-191 June 2, 1941  
Laundry-Appliances OO-L-131b April 28, 1941  
Linoleum; battleship E-LLL-L-351a July 17, 1941  
Nails; Spikes; Staples; and Tacks FF-N-101 May 15, 1941

**Electrical Equipment and Materials—**

Boxes and outlet-fittings, floor; (for) rigid-steel-conduit and electric-metallic-tubing (steel) E-W-B-616 May 23, 1941  
Cable (armored and lead-covered-armored) and cord (armored); (600 volt service and under) E-J-C-71 July 29, 1941 (superseding E-J-C-71 May 23, 1941)  
Conduit; steel, rigid, zinc-coated, June 30, 1941 E-WW-C-581a (superseding E-WW-C-581a May 23, 1941)  
Fittings; cable and conduit E-W-F-406 May 23, 1941  
Outlet-bodies; iron (cast or malleable), cadmium- or zinc-coated, with covers and accessories (for shore use) E-W-O-806 May 23, 1941  
Outlet-boxes; steel, cadmium- or zinc-coated, with covers and accessories E-W-O-821a May 23, 1941  
Panelboards; equipped with automatic-circuit-breakers E-W-P-131 May 23, 1941  
Panelboards; equipped with fuse-connections, or switches and fuse-connections E-W-P-146 May 23, 1941  
Raceways and fittings; metallic, underfloor E-W-R-36 May 23, 1941  
Raceways and fittings; non-metallic, underfloor E-W-R-41 May 23, 1941  
Tubing; electrical, metallic, E-WW-T-806a June 30, 1941 superseding E-WW-T-806a May 23, 1941

Copies of these Emergency Alternate Specifications can be obtained from the Federal Specifications Executive Committee, Procurement Division, U. S. Treasury Department, Washington, D. C.



# "Fewer but Better Finishes"

—One outstanding accomplishment of the RCA Manufacturing Company's extensive company standards program

THE business of the RCA Manufacturing Company is complex, ranging as it does from the manufacture of a tiny lapel microphone to a complete complement of equipment for a broadcasting station. Our standardization program, therefore, also represents a complicated problem.

Standardization as a regular part of RCA company procedure first received attention in Camden in the spring of 1935. The all-important factor of management interest in standardization was taken care of in our company in a definite manner. Our management is solidly behind standardization.

Our first operations were conducted as a committee activity with representation from engineering, manufacturing, and purchasing. After a few months, the results were so favorable that standardization was established as a separate and independent division with an adequate staff.

We now issue and maintain about 125 sets of Standardizing Notices throughout our various departments and manufacturing plants. All volumes are listed as the property of the Standardizing Division and are subject to recall. We require a receipt from each recipient of new issues at the time of issue. This was done to insure proper maintenance of the data. We require that superseded sheets be returned to the Standardizing Division for disposal. This is also done to guard against the danger of keeping obsolete sheets in file with notices which are current.

## Now as to Finishes

Finishing is the most expensive single operation in our plant if improperly done.

No matter how well we have done the job of engineering and manufacturing, the first appeal to the customer is what he sees when he opens the package. A piece of equipment that is scientifically correct and is made to a high

by A. L. Pipper<sup>1</sup>

Manager, Manufacturing Service  
Division, RCA Manufacturing  
Company, Inc.

standard of manufacturing quality may still produce a dissatisfied customer if the finish is bad.

Prior to standardization, our finishes were designated by name and by number. The numbers consisted of digits followed by letters to indicate revisions or similarities or both.

Two elements in this system caused us some concern. First, use of digits followed by letters, for example, 12 and 12A, was too dangerous. It was too easy to omit the letter and get the wrong finish. Second, a factor which operated against letter designations in our case was the difficulty of transposing letters into numerals in Accounting Department for use with tabulating equipment.

## Three-Digit System Gave 999 Numbers

As a result, we adopted a three-digit system, which gave us 999 numbers to use. After five years, we still have spare numbers.

We then cross-indexed the old to fit the new so that we would not have confusion in drawings already existent; for example, 12 became 120; 12A became 121; 12B became 122, and so on.

At the end of three years, the system was so well implanted that the cross-index feature was no longer needed to guide our people.

We then started to eliminate the identification of material by the name of the manufacturer. We found that each manufacturer had his own designation for his materials. We might have

NOTE. This paper was presented before the Standards Group of the Industrial Management Council, Rochester, N. Y., December 3, 1940.

<sup>1</sup> Member of the ASA Company Member Forum.

a stock of John Doe Company, Black Lacquer #45789 and also some XYZ Company, Black Lacquer #A-7899 which was the equivalent of the other. If the job in question started with John Doe #45789, the odds were that it would continue throughout and more material might be purchased even though a stock of XYZ Black Lacquer, #A-7899 was actually on hand.

This problem was not easy to solve. We did it this way:—First we eliminated all reference to the manufacturer in our Standardizing Notices and spoke only of "Finish Number —." Next we requested that all samples and all production quantities be marked with our number by the manufacturer. We did not object to his number appearing so long as "RCA #—" also appeared on the container.

#### Sample Requests Clear Through Standardizing

In cooperation with our Purchasing Department, arrangements were made that all requests for samples of new finishes would clear through the Standardizing Division before any action was taken.

Please note that we put no restriction on who asked for samples. We are a large company and many sections have matters of finish to consider. To say that new materials could be ordered only by the Standardizing Division would have impeded progress and probably defeated the program we had in mind.

We also found we had the normal condition of departmental preferences for material from a specific manufacturer. This is always a factor. If the foreman is getting good results from a certain material he is likely to feel that the material then on hand is the essential element. Our problem was to break down that feeling, but we knew that when we did we must also give the foreman a material he could use to produce in accordance with his quality limits and his production schedules.

We also found it impossible to transfer information by words either spoken or written. Such terms as "light blue" or "glossy black" or "Moderne Brown" seem to create a different mental picture in everyone's mind.

In view of these findings our index system was inadequate and, to some extent, dangerous. For that reason we adopted a new system of three digits and issued a cross index to cover the matter of drawings and parts already in existence. This avoided the correction and re-issue of old drawings.

We had too many finishes but too few of us knew it, so we made some steel panels (we call them Finish Chips) and made an actual specimen of every finish on our list. Then we called together the proper people from Sales, Styling,

Engineering, and Manufacturing to decide, with us, on what we wanted to keep and what was superfluous.

We found that many items could be cancelled outright. In many other cases, we found that we could eliminate one finish and take care of the problem with one we retained. As an example, we had nine different specifications for "Black". We recognize there are shades of black but nine were too many. We now have three.

As everyone knows, descriptive terms do not adequately describe color. If I say "we have a Standard Brown", you will naturally want to know "What shade of Brown?"

So we devised a wall cabinet, slotted to hold our regular 3 x 5 panel or finish chip. These cabinets were provided for each section where the question of finish for merchandise is determined. Each cabinet contains a sample of every Standard Finish. The Standardizing Division maintains the cabinets and keeps them up to date.

Now, the Stylist, or the Sales Manager, or the Engineer can decide by actual visual observation whether or not a Standard Finish, already existent, will be adequate for the job he has in mind. If the standard is adequate, he merely turns it over and specifies "RCA Finish #—" from the identifying number. If his job cannot be handled with an existing standard, he calls in Standardizing and we take over the problem.

#### Need Details for Processes

Next, we found that our processes were not sufficiently definite. We said "clean" but we didn't always say "how clean and with what cleaner". We said "reduce with thinner" but not always with what thinner.

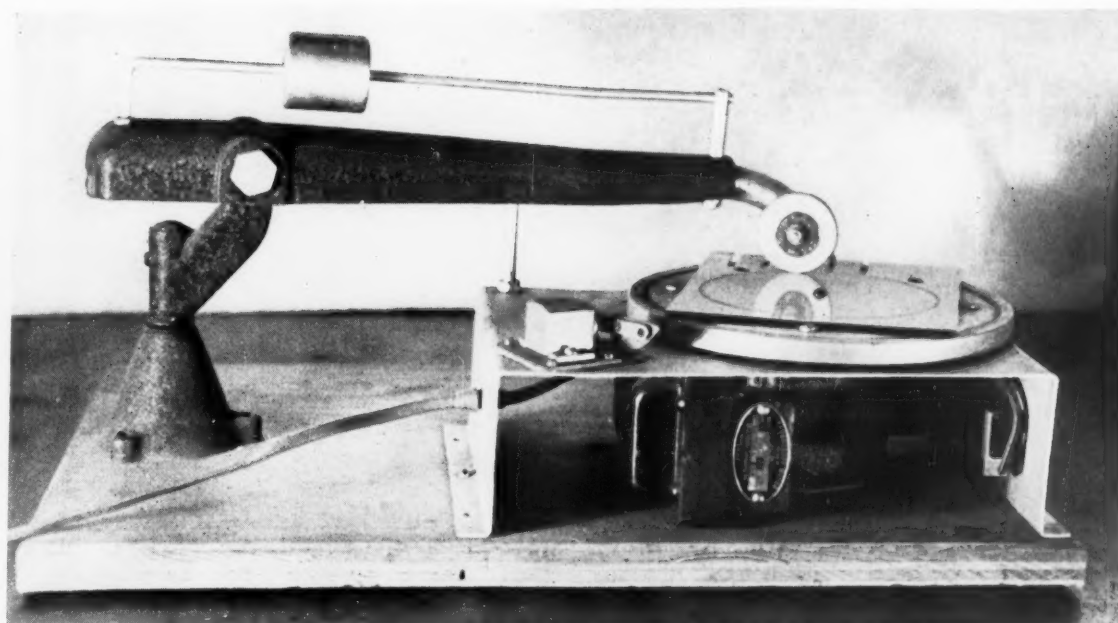
This meant the preparation of Notices which are complete processes in themselves. Every step of the process is given. Those processes which are complete in themselves are made the subject of a separate Notice and are referred to in the individual notices.

We did not have an adequate system of determining the quality of a given material *before* it was applied to the work. The methods and equipment we were able to find seemed to us to be too complicated and elaborate for our use. It seemed to us that we must evolve, by trial and error, a method which gave us adequate information and was fair to the product of all manufacturers.

The Procedure we devised to correct this situation is as follows:

#### Viscosity—

We use a Viscosimeter for determining the correct spraying viscosities for production spraying and for testing of finishing materials.



A circular rubber eraser on a turntable is used by the RCA Manufacturing Company to test the abrasion resistance of a finish

Materials are reduced to *standard* viscosities as specified by Standard Finish Notices for the type of spraying to be done.

#### Tests—

We have four standard tests which we use to determine the acceptability of a finish:

1. Abrasion
2. Scratch Hardness
3. Flexibility—Adhesion
4. Coverage and Seconds per Square Foot to Spray.

#### 1. Abrasion Test

This test is used to determine the abrasion resistance of the finish. Conditions such as sliding a finished part from one assembly operation to another on the finished surface, sliding a finished part in and out of assembly fixtures, or the abrasive action of the packing paper during shipment of the finished product, all make it especially important that our finishes show a high degree of abrasion resistance".

The abrasion test is conducted on the RCA standard abrasion machine which consists of a turntable that revolves at 78 to 80 rpm.

Mounted at 15 degrees off center and supported by a balanced arm is a circular rubber eraser of the type generally used by stenographers. The test panel, which has been sprayed with the finishing material being tested, is placed on the turntable with the finish side up.

We adjust the rubber eraser so that it revolves easily. The angle wiping action of the eraser wears away the film being tested, and allows the eraser to be self-cleaning.

The arm which holds the eraser is balanced so that a pressure of four ounces is obtained at the eraser by moving the weight located on the eraser-supporting arm. When the correct pressure is obtained at the eraser, the weight is locked in place with a thumb screw.

As the panel revolves, the eraser wears the finish and a circle shows where the finishing material is removed. For Air Drying finishes the following table is used:—

Up to 200 revolutions	= poor
200 to 300	" = fair
300 to 400	" = good
400 to 500	" = very good
500 and over	" = excellent

If an unusual number of revolutions is recorded it may indicate a very heavy film thickness and this will reflect in a lower coverage per gallon of material.

For Baked finishes the following table is used:—

Up to 1000 revolutions	= poor
1000 to 1500	" = fair
1500 to 2000	" = good
2000 and over	" = excellent

This test is stopped when 2000 revolutions have been reached.

## 2. Scratch Hardness Test

This test is used to determine the hardness of a finish. Finishes that are too hard have a tendency to be brittle and cannot stand shock or blows without chipping. Finishes that are too soft mar easily and cannot stand packing or abuse without showing print marks of the packing.

The equipment used consists of a counter-balanced arm and pressure weight. On one end of the balanced beam is a phonograph needle. The beam is notched and as the weight is moved towards the needle it increases the weight on the needle until it pierces the film being tested.

The test panel is placed under the needle and drawn towards the operator. The weight on the beam should be moved forward one notch at a time and the panel observed after each forward movement until the film is pierced.

When the film is pierced the needle will complete a circuit to turn on a light. We check the needle frequently to see that it is sharp and we change it when necessary to maintain a good sharp point.

For Air Drying finishes the following rating table is used:—

Up to the	5 notch	= poor
Up to the	6 notch	= fair
Up to the	8 notch	= good
Up to the	10 notch	= very good
10th notch and over		= excellent

For Baked finishes the following rating table is used:—

Up to the	9 notch	= poor
Up to the	11 notch	= fair
Up to the	13 notch	= good
Up to the	16 notch	= very good
16th notch and over		= excellent

## 3. Flexibility and Adhesion Tests

This test is used to determine the flexibility and adhesion of the finish. The test panel is placed in the flexibility fixture finished side up and clamped in place. The handle of the fixture, equipped with a roller, is drawn down over the tabs of the test panel. The tabs are bent over radii of different dimensions.

The *flexibility* of the finish is indicated by its ability to withstand bending at the different radii.

The following table is used for air drying and baked finishes after bending the tabs of the test panel:—

If the film is broken on all the radii including the 3/16 inch radius the rating is poor.

If the film is broken on all the radii up to and including the 1/8 inch radius, the rating is fair.

If the film is broken on all the radii up to and including the 3/32 inch radius, the rating is good.

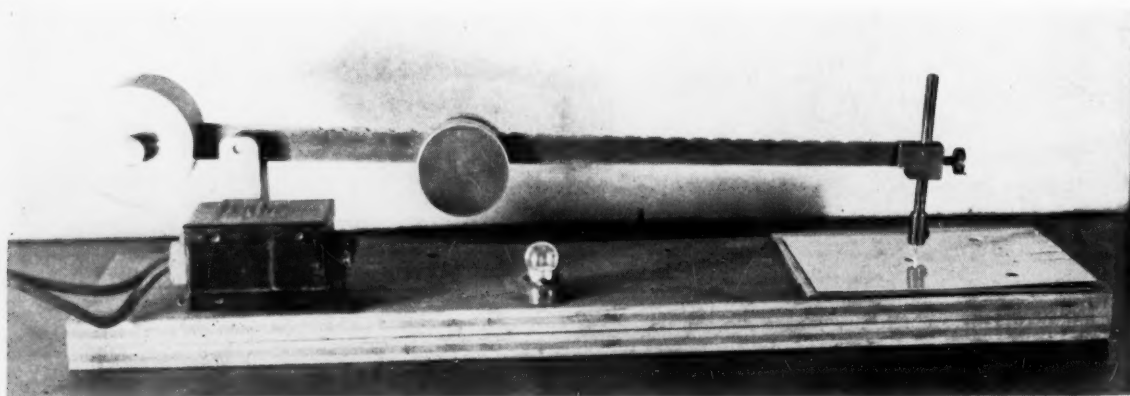
If the film is broken on the 1/32 inch and 1/16 inch radii only, the rating is very good.

If the film is not broken on all the radii, the rating is excellent.

If the finish is fractured (not broken) at any of the radii and the film can be easily removed by pressure with the thumb nail or equivalent methods, the finish is considered to have poor adhesion and if the film cannot be removed, the finish is considered to have good adhesion.

If the finish is not fractured at any of the radii, we make an "X" with the blade of a knife, razor blade, or equivalent, on the flat surface on the finished side of the panel.

If the film can be easily removed, by pressure with the thumb nail or equivalent, at the arrow point sections where the "X" lines cross, the finish is considered to have poor adhesion. If the film cannot be removed, the finish is considered to have good adhesion.



Here a phonograph needle determines how hard a finish is. The weight on the arm is moved forward notch by notch until the needle pierces the finish



#### 4. Coverage Tests and Seconds per Square Foot to Spray

This test is used to determine the coverage per gallon of finishing material ready to spray. A 3 ft x 3 ft panel (9 sq ft) is used as a unit of measure.

The finishing material, reduced to the recommended standard viscosity, is poured into a graduate-type jar.

Air pressure is set as per standard for the particular types of finishing material. The 3 x 3 panel is placed in the spray booth and the material applied with the least number of strokes, shutting off the flow of material at the end of each stroke.

The intent of this test is to apply only enough finishing material to give a good commercial finishing job.

From these results we get an arbitrary, but comparable, indication of the square foot coverage to be expected per gallon of material.

#### Test Methods Suit Needs

We recognize that there is much to be questioned in the tests we make. In our work, the matter of thickness, in most cases, is subject to reasonably wide tolerances.

Color matching is visual and also within reasonably wide limits.

The test method we use suits our needs and, since we apply the same test to the materials of all suppliers, our results are comparable and, we feel, fair to our suppliers.

In addition to the tests themselves, we also had the problem of obtaining test data without bringing in the matter of suppliers' identity.

For this reason, in our standard practice, the Standardizing Division makes all tests.

We receive the sample and first assign a code number. The code consists of

the month — (1 or 2 digits)  
the day — "  
the year — (2 digits)

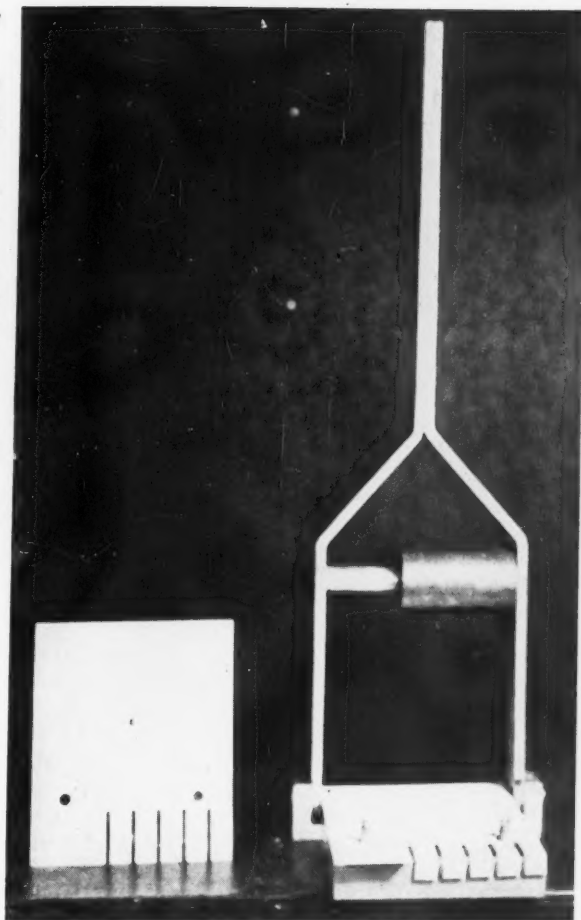
Assume that a requested sample reaches us on July 16, 1940. The vendor's name is recorded by us and all identifying marks are then removed from the sample and the code applied. At this point the code would read:—

RCA # 702 — 71640

Each succeeding sample would add a digit. For example, the second specimen of a specific type would read:—

RCA # 702 — 716401

If the material fails in our Laboratory tests, a report is issued to the Purchasing Department



Flexibility of a finish is tested by drawing down the handle of this fixture and bending the tabs of the test panel over different radii

and further relations with the vendor are in their hands. Failure on a test does not bar a vendor, although, obviously, we will not continue making tests indefinitely. As a matter of general practice, a failure usually results in a visit from the supplier and a discussion of the reasons for the failure.

If the test we make indicates approval, the balance of the quart sample, identified by RCA finish and code numbers, is sent to the factory for a production test.

If the factory results are good, we then order a 5-gallon lot and run the material through production to check our results. The production results finally govern. An approval on a laboratory basis is not sufficient. Unless the production test confirms the laboratory result, approval is not given. The material is then approved and

an approval record is made. One copy is supplied to each Purchasing Department of our various manufacturing plants, and one copy remains in the files of the Standardizing Division.

This procedure continues until we have at least two approved sources of supply, and usually three to five. When we first set up this test procedure we found ourselves making an excessive number of tests. We now limit the number of samples on which we run tests to the scope of the job.

If consumption is very small, we stop testing when two suppliers are approved. If probable consumption is large, we establish at least three suppliers and usually more.

This method has been good both for us and for the suppliers. The number of samples decreased considerably and suppliers found they were not wasting their time and ours on samples which had no real business volume.

In our work on finishes we found that most materials seemed to have a matching element known as "thinner".

As we reached the point where the identity of the manufacturer was no longer a major factor in the successful use of basic paint materials, we found that "thinner" was a real problem. At one time we had eight different kinds. We now have two.

One of the factors in our solution of this problem was the cooperation of the vendors.

Under our present system we give the supplier a sample of our "Standard Thinner" and ask "will your material work satisfactorily with this thinner?"

#### "Standardizing Notices" Are Ordering Guide

Our Standardizing Notices give processes which are always subject to revision as circumstances warrant. In the case of finishes, however, we also

indicate the probable coverage to be expected per gallon of material. This is an arbitrary figure which remains constant and comparable because the measuring stick is always the same. Improvements in technique and in establishing the records have now reached the point where the Standardizing Notice is a guide for ordering and stocking materials.

#### Fewer But Better Finishes

We do not feel that ours is necessarily the best system. In many respects our methods of test and approval are subject to scientific criticism, but the procedure has worked for us.

We have fewer finishes but better finishes.

We haven't fallen behind the progress in the art.

We have less obsolete material. Our inventory of finish materials is not a problem. We rarely have a "dead loss" and have only a small percentage to "use up" during the year.

We have a definite place of record to go to if we encounter troubles and usually locate the trouble quicker by going to the Standardizing Notice and reproducing the work on a controlled and known step-by-step process.

Our baking ovens are now set to one temperature because we request all "baked" type materials to be formulated to work with the temperature best controlled in our equipment. New "baked" type materials are considered with regard to our facilities.

In our company, our people all speak of Finish #—— and we rarely hear about "some more of that light blue with the peculiar wrinkle formation."

We avoid complex routines and strive for simplicity of procedure. The system described has worked well for us and it is on that basis that we feel free to commend it to the consideration of others who have similar problems.

## John Martin Schreiber

John Martin Schreiber, general manager of street railway plant operations for the Public Service Corporation of New Jersey and one of the original 15 members of the American Engineering Standards Committee (now the ASA), died July 18 of a heart ailment. Mr. Schreiber was 65 years old. He was an international authority on street railway transportation.

Mr. Schreiber had been with the Public Service Corporation since 1903 when he became assistant engineer of street railway operations. From that position he became successively chief engineer, then general manager of the Southern New

Jersey division, and finally in 1927, general manager of plant operations for the entire Public Service street railway and bus system in New Jersey. He was widely known because of his efforts in developing a passenger bus which can operate on either overhead electric wires or on oil fuel if no wires are available on all or part of the route covered by the bus.

Mr. Schreiber became one of the first members of the American Engineering Standards Committee when he was appointed in October, 1918 as a representative of the American Society of Civil Engineers. Later he was also appointed by the

American Engineering Railway Association (now the American Transit Association) as its representative on the Main and Executive Committees. He served as a member until 1924.

This early representation was not the only contact Mr. Schreiber had with the ASA, however. In December, 1935, he was again appointed by the American Transit Association as one of its

representatives on the ASA Standards Council. He completed his three-year term in January.

In addition to his work on the ASA Standards Council, Mr. Schreiber served as president of the American Railway Engineering Association in 1912-13 and since 1933 as chairman of the special consulting and development committee of the National Association of Motor Bus Operators.

## ASA Forum Organizes Committee To Correlate Steel Specifications

Formulation of a definite plan for the comparison and coordination of steel specifications is the task of a subcommittee organized following a meeting of the ASA Company Member Forum July 18. The meeting, which brought together representatives of steel manufacturers, users, the American Society for Testing Materials, the War and Navy Departments, the OPM, the American Iron and Steel Institute, and the Society of Automotive Engineers, found that the variety of specifications now in use is confusing to the Government purchasing officers as well as to the fabricators who must follow Government specifications. This is particularly true in the present emergency, it was stated, because of the urgency of the orders, the speed with which the work must be done, and the fact that in many cases substitute materials must be supplied. All this makes it important that there should be some correlation of the specifications so that their requirements can be easily compared.

### Frye Is Chairman

R. A. Frye, Westinghouse Electric & Manufacturing Company is chairman of the new committee, and the membership includes the following organizations:

American Iron and Steel Institute  
American Society for Testing Materials  
Aeronautical Board  
Federal Specifications Board  
National Aircraft Standards Committee  
Society of Automotive Engineers  
U. S. War Department  
U. S. Navy Department

Members of Special Committee of the ASA Company Member Forum:—George R. Gohn (Bell Telephone Laboratories); Arthur Huntress (Ingersoll-Rand Company); W. S. MacLeod (Standard Oil Development Company); H. W. Samson (General Electric Company); R. A. Frye (Westinghouse Electric & Manufacturing Company)

At a meeting held August 1 this new subcommittee made a start towards carrying out its assignment. As its first step it has begun work on

a chart showing the requirements for chemical composition and physical properties for the principal steel specifications now in use in this country. These include specifications of the ASTM, SAE, AISI, Navy Department, War Department, and the Federal Specifications Board.

### Standards Are Subject Of NYA Pamphlet

A popularized discussion of standards as they are maintained and used at the National Bureau of Standards is the second in a series of pamphlets on *The Modern World at Work*, prepared by the National Youth Administration. First pamphlet in the series is on *Electricity*; others cover *Agriculture*, *Roads*, *Automobiles*, and *Weather*. The pamphlets are being prepared "to supply information about some of the services which Government renders for the people of the United States, about the way in which invention has stimulated the development of some of the great industries of the country, and about ways in which the young men and young women of America can participate in productive work that will be of profit to themselves and to the Nation."

Copies of the pamphlet on *Standards* are available at 15 cents each from the Superintendent of Documents, Government Printing Office, Washington, D. C.

### A Watchword for Standardization

"Firm enough to bring order out of chaos but elastic enough for progress."

—From *E. H. R., Camden, N. J.*

# Labeling News

## Wilkinson, Gaddis Will Buy Only Grade Labeled Canned Vegetables

A-B-C grade labeling took a new step during July when Wilkinson, Gaddis & Company of Newark, N. J., operator of a chain of 150 groceries and supermarkets, announced that in the future all its purchases of canned vegetables would be made on condition that a U. S. Department of Agriculture grade certificate be included with the manufacturer's shipment. This provision applies, of course, only to canned vegetables sold under Wilkinson, Gaddis Company's own labels, and not to canned vegetables sold under nationally advertised brands.

The method adopted by Wilkinson, Gaddis & Company is one of three methods which can be used by a canner to grade his products:

1. He can do his own grading, in accordance with Agricultural Marketing Service standards.
2. He can pay for the full-time services in his plant of a government inspector. This entitles him to label his line not merely "Grade A" or "B" or "C", but "U. S. Grade".
3. He can compromise between these two pro-

cedures by having samples of his shipments graded at AMS inspection centers. This entitles him to a government certificate, which he can mention in his advertising, but which he cannot mention on his labels.

The third procedure has been chosen by Wilkinson, Gaddis, although up to the present time it is the one least used. Demand for inspectors to grade the product in the plant is greater than the supply, which places a restriction on the use of the first method. Most distributors grade their own product, following the AMS standards. Recently, however, the Food and Drug Administration has been seizing shipments of canned goods which fail to measure up to the grades declared on the label, and surveys indicate that this type of grading is often inaccurate.

Wilkinson, Gaddis will carry only two grades—A and B. The labels used will be worked out in cooperation with the National Consumer-Retailer Council and will combine grade and informative labeling.

## How Good Housekeeping Will Revise Its Certification Program

**F**OLLOWING announcement of the findings of the Federal Trade Commission on the Good Housekeeping seals of approval, and issuance of a "cease and desist" order which took effect July 14, Good Housekeeping now announces its revised procedure in connection with its seals and guaranty emblem.

Good Housekeeping Magazine operates both the Good Housekeeping Institute and the Good Housekeeping Bureau. The first covers household devices, utensils and mechanical equipment, and household soaps and cleansers; the second has to do with foods, pharmaceuticals, and cosmetics. Good Housekeeping announces that it will continue as in the past to grant its "Tested and Approved" seal for Institute products, the

seal to be identical in wording with that now in use. The seal for the products coming under the jurisdiction of the Bureau, on the other hand, is a "Recommended" seal, the use of which is now being extended by the magazine to all classes of products coming within the Bureau's scope.

To meet the requirements of the FTC order, which provides that unless the Good Housekeeping guaranty is definitely limited in application, it will be considered to cover all advertising claims with no limitation, the scope of the guaranty will be set forth in all its essential respects. The guaranty emblem will be standardized in form and wording. It will carry in abbreviated form all the terms of the guaranty as set forth on page 6 of each issue of the magazine and will be uniform

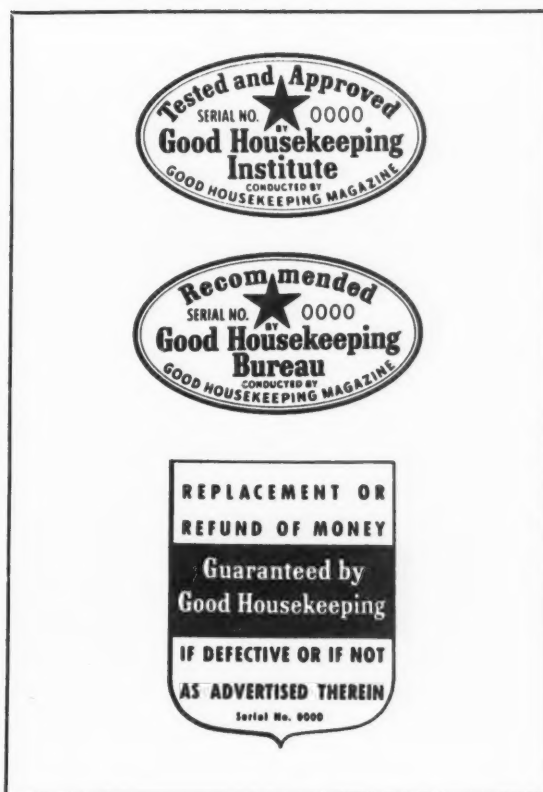


and of one design rather than of various designs as heretofore.

The use of Good Housekeeping seals will be the same as heretofore, except that no seal is to be used and no reference to Good Housekeeping's approval or recommendation is to be made in connection with claims not specifically authorized by Good Housekeeping at the time the product was tested. Any use of a seal or guaranty in a manner which has not had the express authorization of Good Housekeeping Magazine shall automatically terminate the right to any use of such seal or guaranty by the person making such unauthorized use.

The Good Housekeeping guaranty is to be used only in connection with those claims which have appeared in, or been authorized by, Good Housekeeping and no reference may be made to such guaranty except through the use of the new emblem precisely as designed and worded.

"We shall continue constantly to educate the public to a proper appreciation of the value and importance of the Good Housekeeping seals and emblem," Warren C. Agry, publisher of Good Housekeeping Magazine, states. "The termination of the proceedings is satisfactory and to a great degree gratifying because the Federal Trade Commission conducted a most searching investigation into all of our activities and the order has required no basic changes in our policy and procedures."



The Good Housekeeping Labels

## Propose Mandatory Labeling Law For Fresh Fruits and Vegetables

A BILL to make grade labeling of fresh fruits and vegetables mandatory was proposed early in July when a bill, H.R. 5241, was introduced in Congress by Representative John Z. Anderson of California. The bill is now before the House Committee on Agriculture.

The purpose of the proposal, as explained in the bill, is to foster wider distribution of fruits and vegetables "by better and more general labeling of containers in terms of United States standards," and in this way to "encourage the purchase and sale of commodities on a basis more equitably relating price to quality."

In addition to its requirements concerning labeling, the bill gives the Secretary of Agriculture authority to establish and modify standards and grades for fresh fruits and vegetables and promote the use of standards.

The first section on labeling is aimed specifically at state trade barriers. It gives the Secre-

tary of Agriculture authority to rule that any fruit or vegetable bearing a U.S. grade label "is adequately marked for movement in interstate commerce," and that the product bearing such a label "shall not be obstructed or impeded by any person for the purpose of requiring such container to be labeled, tagged, branded, or described according to grade or quality descriptions."

Such a ruling would make it impossible for a state to require, as some do, that all fruits and vegetables sold within its borders must bear the state's own label, irrespective of any U.S. grading.

The second section gives the Secretary of Agriculture the authority to require that all containers moving in interstate commerce shall be labeled or described in terms of United States grades. This authority would be granted to the Secretary with the provision that it should be

exercised whenever he finds that such grade information will facilitate the marketing of such commodity and its distribution to consumers.

The bill also empowers the Secretary "to investigate the standardization, grading, preparation for market, packaging, handling, and dis-

tribution through wholesale and retail outlets, and the demands and preferences of consumers of fresh fruits and vegetables."

A public hearing must be held before a mandatory grade labeling regulation is issued, the bill provides.

## Standards Needed For Textile Tests Subcommittee Reports To ACUCG

**A**LTHOUGH relatively simple and long-accepted standards are in use by laboratories for testing certain characteristics of textiles, there are many such characteristics for which no standards are available, a subcommittee reported June 27 to the ASA Advisory Committee on Ultimate Consumer Goods.

The report followed a survey carried out by the subcommittee on the procedure followed by some 140 laboratories in determining characteristics of various types of textiles. Most laboratories, the subcommittee found, prefer to use accepted standard tests wherever possible. Some of these standard tests which are widely used include tests for tensile strength, fiber identification, shrinkage, and color fastness.

There is less uniformity of testing methods, however, for those characteristics which are particularly affected by consumer use or which have to do with evaluating special features given to the goods by finishing treatments, the subcommittee found. Although a number of laboratories have made special efforts to develop laboratory standard procedures that will simulate use conditions, tests are particularly needed for the following, the committee reported:

- Wear
- Water permeability
- Aging
- Thermal transmission
- Special finish effects, including crush resistance, mildew resistance, handling, etc.
- Crease resistance
- Absorption of moisture (rate as well as total amount)
- Snag resistance
- Fume fastness
- Moth resistance

Further study should be made, the subcommittee recommended, to determine whether research is needed in each case before standard test methods for these characteristics can be developed. If it is found that a research program is needed in any case, a cooperative program with governmental, educational, and technical groups interested in textiles may be recommended. If in any case it is found that research is not needed but that a standards program could be started immediately, the subcommittee recommends that a program be started with the cooperation of those

groups interested in the formulation of standards. Members of the subcommittee which carried out the survey and presented the report to the ACUCG, are:

- Dr. Jules LaBarthe, Jr., Mellon Institute, *Chairman*
- W. B. Floyd, manager, Sears-Roebuck and Company Laboratory
- M. L. Chandross, director, Testing Laboratory, Abraham and Straus

Copies of the report are available from the American Standards Association.

## ASTM Asks Committees to Include Label Provisions in Standards

It would be of direct value and assistance to the consumer if requirements for marking products to indicate that they conform to ASTM specifications could be included in all ASTM standards, the Executive Committee of the American Society for Testing Materials decided recently. The Executive Committee therefore declares that ASTM committees may include in their standards provisions that the product or materials covered by the standard be tagged with the ASTM specification number and the type, class, or grade if these are included. This decision is embodied in the following policy formulated by the Executive Committee:

"Standing committees may, wherever possible and solely for the purpose of identifying the material or product, provide in ASTM specifications that the material or product covered therein be suitably marked or tagged with the ASTM serial designation of the specification and the type, class, or grade of material or product where such is specified."

The purpose of this requirement is to provide a means whereby the manufacturer can identify his material or product as complying with the ASTM specifications, but does not mean that the Society certifies or guarantees compliance with these requirements.

The new marking policy will not necessarily be carried out immediately, but committees are being asked to review the specifications in their charge and determine whether marking requirements should be included. If so, the committees are asked to include the necessary revisions in their 1942 reports.

# ASA Standards Activities

## Approved Standards Available Since Publication of Our July Issue

Building Code Requirements for Reinforced Gypsum Concrete A59.1-1941 25¢  
Inspection Requirements for Motor Vehicles (Revision of D7-1939) D7.1-1941 25¢

## Standards Approved Since Publication of Our July Issue

Calcined Gypsum for Dental Plasters (ASTM C 72-40) A65.1-1941  
Keene's Cement (ASTM C 61-40) A66.1-1941  
Gypsum Lath (ASTM C 37-40) A67.1-1941  
Gypsum Sheathing Board (ASTM C 79-34) A68.1-1941  
Gypsum Wall Board (ASTM C 36-34) A69.1-1941  
Methods of Testing Gypsum and Gypsum Products (ASTM C 26-40) A70.1-1941  
Body Sizes for Boys' Garments L11.1-1941  
Compiling Industrial Accident Causes Z16.2-1941

## Standards Now Being Considered by Standards Council for ASA Approval

Manhole Frames and Covers for Subsurface Structures A35.1  
Specifications for Gypsum (ASTM C 22-25) (Revision of A49.1-1933)  
T-Slots, their Bolts, Nuts, Tongues and Cutters (Revision of B5a-1927, from status of American Tentative Standard to American Standard) B5.1  
Jig Bushings (Revision of B5.6-1935)  
Keyways for Holes in Gears B6.4  
Cast-Iron Pipe Flanges and Flanged Fittings, Class 250 (Revision of B16b-1928)  
American Standard Safety Code for Jacks B30  
Preferred Thicknesses for Uncoated Thin Flat Metals (Under 0.250 In.) B32.1  
Gage Blanks CS 8-41 (Revision of B47-1933)  
Definitions of Special Terms, Section 1 of the National Electrical Safety Code C2, Section 1  
Electric Fences, Part 6 of the National Electrical Safety Code C2, Part 6  
Protection of Structures Containing Inflammable Liquids and Gases—Part 3 of Code for Protection Against Lightning (From status as American Tentative Standard to American Standard) C5, Part 3  
Definitions of Electrical Terms C42  
Methods of Test for Impact Resistance of Electrical Insulating Materials C59.11  
Commercial Standards for Sun Glass Lenses (CS 78-39; CS 79-39)  
Specifications for Basic Sulfate White Lead (ASTM D 82-38) K47  
Specifications for Blue Lead: Basic Sulfate (ASTM D 405-38) K48  
Specifications for C.P. Para Red Toner (ASTM D 475-40) K49  
Specifications for C.P. Zinc Yellow (Zinc Chromate) (ASTM D 478-40) K50  
Methods of Test for Alkalinity or Acidity of Pigments (ASTM D 278-31) K51

## Standards Now Being Considered (Continued)

Methods of Test for Bleeding of Pigments (ASTM D 279-31) K52  
Methods of Test for Hygroscopic Moisture (and Other Matter Volatile Under the Test Conditions) in Pigments (ASTM D 280-33) K53  
Methods of Test for Oil Absorption of Pigments (ASTM 281-31) K54  
Methods of Test for Acetone Extract in Dry Lampblack and Dry Bone Black (ASTM D 305-31) K55  
Methods of Test for Tinting Strength of White Pigments (ASTM D 332-36) K56  
Methods of Test for Mass Color and Tinting Strength of Color Pigments (ASTM D 387-36) K57  
Methods of Chemical Analysis of Yellow and Orange Pigments Containing Chromium Compounds, Blue Pigments, and Chrome Green (ASTM D 126-36) K58  
Methods of Chemical Analysis of Dry Mercuric Oxide (ASTM D 284-33) K59  
Proposed American Recommended Practice for the Use of Explosives in Anthracite Mines M27  
Specifications for Drinking Fountains Z4.2  
Safety in Electroplating Operations Z9.1  
Gas Water Heaters (Revision of Z21.10-1937)  
Listing Requirements for Attachable Gas Water Heating Units (Revision of Z21.26-1937)  
Approval Requirements for Gas Counter Appliances Z21.31  
Graphical Symbols for Use on Drawings in Mechanical Engineering (Revision of Z14.2-1935) Z32.11  
Public Approval and Certification Procedures Z34  
Grinding, Buffing and Polishing Equipment Sanitation Z43

## Project Withdrawn by ASA

Safety Code for Amusement Parks Z13

## New Project Being Considered

Spray Solution Used in Connection with Spray Systems for the Prevention of Offset on Printing Presses

## Defense Emergency Standards

### Standards Under Way

Allowable Concentration of Acetone Z37  
Allowable Concentration of Azides, Lead and Sodium Z37  
Allowable Concentration of Cadmium Z37  
Allowable Concentration of Ether Z37  
Allowable Concentration of Manganese Z37  
Allowable Concentration of Tetryl Z37  
Allowable Concentration of TNT Z37  
Allowable Concentration of Xylol Z37

### Draft Available

Allowable Concentration of Cadmium Z37/63

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